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AN ABNORMAL CESTODE PROGLOTTID.¹

EDWIN LINTON.

In the summer of 1905, while engaged in work for the Bureau of Fisheries at the Woods Hole Laboratory I found an interesting cestode abnormality, a description of which is here given.

Among a lot of free segments of the cestode *Calyptribothrium occidentale* Linton from the torpedo, I noticed one which had two reproductive apertures upon one of the lateral margins. Upon flattening this segment under a cover-glass it was found to be double. The reduplication can be best explained in general by saying that it is such as would be formed if two normal proglottids were to grow together by their anterior ends.

The specimen was fixed over a flame, and after the customary hardening was stained with borax carmine and mounted in balsam. Fig. 1 was sketched from the mounted specimen. The specimen measured 4 millimeters in length and 2 millimeters in breadth.

As may be seen by an examination of the figure the specimen would give rise to two complete proglottids if it were transversely bisected midway between the two reproductive apertures. At the opposite ends will be seen the lobed ovaries (*o*, *o*) arranged symmetrically on either side of the median line, with the shell gland (*sg*, *sg*) between the two lateral masses of the ovaries and toward the extremity of the proglottid.

The reproductive apertures are on the same lateral margin, each being approximately not far from one third the total length of the double segment from one end.

Each of the two parts, considered by itself is a normal segment, so far as the general arrangement of the various organs is concerned, except that there is relatively less space taken up by the testes (*t*) which are massed together in the median region and possessed in common by the two component parts of the double segment.

The vitelline glands (*vg*, *vg*) are continuous along the margin

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opposite the reproductive apertures. On the opposite margin a vitelline mass separates the two vaginae and, like the testes, belongs to both components of the double segment.

There is no line of demarcation between the two components. The margins are continuous and smooth everywhere except between the reproductive apertures where the minute serrations, which are characteristic features of younger portions of the

strobile, are seen. These serrations are inclined towards the extremity of the smaller part, and may be taken as belonging to that part.

There is no indication as to which is the older of the two parts, except a slight difference in size. Evidently the reversal took place very soon after the primary segment was formed. Although the segment was not seen attached to its strobile it is not conceivable that the abnormal condition was assumed after separation from the strobile.

It is to be noted that there is a reversal in a dorso-ventral direction also, the vagina and oviduct lying above the uterus in one part and below the uterus in the other. Or, to state this comparison in another way, if the specimen were folded together on a hinge-line crossing transversely between the vaginae

the two components would not be symmetrical to the plane of their apposed faces, but one would correspond in the position and arrangement of the parts to the other.

Abnormalities in cestodes are of common occurrence and the

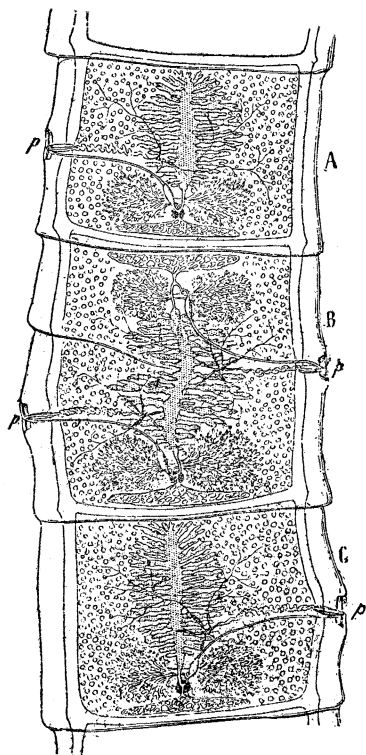


FIG. 2. After Blanchard. Abnormality of genital organs of *Tania saginata*. A, C, normal segment; B, abnormal segment.

literature of the subject is considerable. The only case, however, which at all resembles the subject of this sketch, that I find in the literature of the subject, to which I have access, is the one recorded by Blanchard for *Tænia saginata* (*Bulletin de la Société Zoologique de France*, 1890, XV., 166-168, and reprinted in *Progrès Médical*, July, 1894).

My friend Dr. Stiles informs me that, while he has repeatedly found abnormalities in cestode segments, he has not made any record of any cases such as is described in this paper.

On account of the unique character of this abnormality, therefore, and for purposes of comparison I reproduce Blanchard's figure (Fig. 2).

In Blanchard's specimen the ovaries and vitelline glands are at opposite ends of the abnormal segment; the testes are continuous along the lateral margins; the reproductive apertures are on opposite lateral margins; the uterus is common to both parts. At about one third of the length from the anterior end there is a transverse incision which reaches to the median line, and is followed on its side by a perfectly normal segment. If this incision were to extend somewhat diagonally across, so as to reach the other margin behind the reproductive aperture, there would then be a single inverted segment intercalated between two normal segments.

It should be stated here that the abundance of material found in the summer of 1905 furnishes additional data, which will make it necessary to separate the two varieties noted in the original description (see Bulletin of the United States Fish Commission for 1899, p. 298) into two distinct species.

The abnormal segment belongs to the larger variety which will retain the name *C. occidentale*.

WASHINGTON AND JEFFERSON COLLEGE,
December 1, 1906.